On the Left Periphery of the Complements of Class C Predicates

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1. Introduction

This paper investigates the left-peripheral structure of the complement clauses that resist Main Clause Phenomena (MCP). MCP typically occur in main clauses but are tolerated in a subset of complement clauses. According to Hooper and Thompson (H&T) (1973), English complement clauses can be divided into five classes depending on their selecting predicate semantics.

(1) Hooper and Thompson (1973: 473-474)

Non-factive:	Class A: say, report, claim, be true, etc.
	Class B: suppose, believe, think, etc.
	Class C: be (un)likely, be (im)possible, deny, etc.
Factive:	Class D: resent, regret, be surprised, etc.
	Class E: realize, learn, know, find out, etc.

Among these, only the complements of Class C and D predicates do not tolerate MCP such as topicalized arguments[1]:

(2) a. The inspector explained that each part he had examined very carefully. (A)
b. It appears that this book he read thoroughly. (B)
c.* It was impossible that each part he had examined carefully. (C)
d.* John regretted that Gone with the Wind, we went to see. (D)
e. We saw that each part he had examined carefully. (E)
(2 a,b,c,e: Hooper and Thompson 1973, d: Authier 1992)

H&T argue that assertion is the crucial factor enabling MCP to occur in some of the complement clauses. That is, in complements of Class A, B, and E, their proposition is asserted. On the other hand, Class C predicates do not assert nor presuppose the proposition of their complements, and Class D predicates presuppose the truth of their propositional complement.

While the syntactic treatment of the semantic notion "assertion" still awaits further investigation, what concerns us in this paper is the notion of factivity and how it is generally related to the lack of MCP in some of the complement clauses[2]. Since Kiparsky and Kiparsky (1970), many have argued that the particular semantics of the complements of Class D predicates, i.e. factive complements, is reflected on their complex structure of CP, and that the complex structure prevents MCP from occurring in factive complements. However, complements of type C predicates do not allow MCP to occur either, and they are apparently not factive in nature. This can be observed from the following contrast between the factive complement in (3a) and the complement of Class C predicate in (3b).

(3) a. #Mary regrets that she skipped class, but she didn't. (Basse 2008: 54, (2a))
b. It is likely that Mary skipped class, but she didn't.

(3a) is odd as it contradicts the presupposition that Mary skipped class. The absence of such contradiction in (3b) indicates that the truth of the proposition is not presupposed. Therefore, the special semantics of factive complements is not a requirement for a clause to resist MCP. Given this, this paper investigates the similarities and differences between factive complements and complements of Class C predicates.

This paper is organized along the following lines. In the next section, I introduce recent analyses of MCP in adverbial clauses. In section 3, the intervention analysis of adverbial clauses is extended to factive

complements. In section 4, I argue that the left-peripheral structures of factive complements and complements of Class C predicates are similar, despite their semantic differences drawing on data from weak islands. Section 5 concludes the paper.

2. Main Clause Phenomena in Adverbial Clauses and Intervention With Operator Movement

Before plunging into complement clauses, let us begin by introducing previous analyses of MCP in adverbial clauses, which have been studied more than complement clauses[3].

2.1 Temporal Adverbials

Topicalized adjuncts can occur in temporal adverbial clauses but topicalized arguments cannot:

(4) a* When her regular column she began to write last year, I thought she would be OK. (Haegeman 2012: 194, (90a))
b. When last year she began to write her column, I thought she would be OK. (Haegeman 2012: 194, (90b))
c.* When this song I heard last week, I remembered my first love. (Haegeman and Ürögdi 2010: 116, (5a))
d. When last week I heard this song, I remembered my first love. (Haegeman and Ürögdi 2010: 116, (5b))

Furthermore, that an English temporal clause can have both high and low construal is well documented in the literature (Geis 1970, 1975, a. o.):

(5) I saw Mary in New York when [$_{TP}$she claimed [$_{CP}$that [$_{TP}$she would leave]]]. (Larson 1987)
a. High construal: "I saw her at the time she made that claim"
[$_{CP}$when$_i$ [$_{TP}$she claimed [$_{CP}$that [$_{TP}$she would leave]] t_i]]

b. Low construal: "I saw her at the time of her presumed departure"
[$_{CP}$when$_i$ [$_{TP}$she claimed [$_{CP}$t$_i$ that [$_{TP}$she would leave t$_i$]]]]

Interestingly, the low construal disappears if a complex NP island is inserted (Geis 1975, Larson 1987).

(6) I saw Mary in New York when [$_{TP}$she made [$_{DP}$the claim [$_{CP}$that [$_{TP}$ she would leave.]]]]
a. High construal: "I saw her at the time she made that claim"
b. Low construal: *"I saw her at the time of her presumed departure"

The absence of the low construal in (6) indicates that movement of a *wh*-phrase is from a low position to a high position.

Then, we are led to ask how movement of a *wh*-phrase and the lack of MCP in temporal adverbials are related to each other. The key to answering this question lies in topic islands. In English, generally, topicalized arguments do give rise to intervention with *wh*-movement but initial adjuncts do not. This is shown in the interrogative *when* clauses below.

(7) a.* I found out when her regular column she began to write.
b.* I still remember the day when her regular column she began to write.
c.? I wonder when, in her university days, she began to write her column.
d.? I still remember the day when, in her university days, she bega to write her column.
(Haegeman and Ürögdi 2010: 116-117)

If temporal adverbials involve movement of a *wh*-phrase, it is natural

to assume that the same intervention takes place in temporal adverbials. Along this line, Haegeman (2010a) proposes that topicalized arguments cannot occur in temporal adverbials as they would give rise to an intervention effect in *wh*-movement. This is schematized in (8).

(8) *John left [$_{CP}$when the office [$_{TP}$Sheila left ~~the office~~ when]]

(Based on Haegeman 2010 a: 635, (18b))

In (8), the argument "the office" is fronted for topicalization, and the *wh*-phrase cannot move across it.

2.2 Conditional Clauses

The intervention approach to the lack of MCP has been extended to other adverbial clauses. As shown in (9), conditional clauses also exhibit argument/adjunct asymmetry of topicalization.

(9) a.* If these exams you don't pass, you won't get the degree.
b. If on Monday the share price is still at the current level then clearly their defence doesn't hold much water.

(Haegeman 2010 b: 599, (9))

Bhatt and Pancheva (2006) argue that conditional clauses are derived by the movement of a null world operator to the Spec, CP position. Furthermore, in many languages, conjunctions introducing temporal adverbials and conditional clauses are the same, such as German *wenn*. These observations led Haegeman (2010 b) to propose that the prohibition of topicalized argument in English conditional clauses is attributed to intervention with a null operator movement. This is schematized in (10).

(10) [$_{CP}$OP if [$_{TopP}$this book [$_{FinP}$ ~~OP~~ [$_{TP}$you ... [$_{VP}$find ~~this book~~]]]]]

(Haegeman 2010 a: 636, (25))

So far, we have seen the intervention analysis of MCP in adverbial clauses. By analogy with topic islands that are generally observed in English, the lack of topicalized argument in some of the adverbial clauses is ascribed to intervention with movement. The effect obtains with temporal *when* or with the invisible operator.

2.3 Intervention by Relativized Minimality

A simple analysis of topic islands comes from Relativized Minimality of Rizzi (1990). More specifically, an A'-movement (topic movement) blocks another instance of A'-movement (*wh*-movement) from taking place across it. In recent studies of locality (Starke 2001, Rizzi 2004, Endo 2007, Haegeman 2012, a.o.), the relevant blocking effect is reduced to feature-based relativized minimality. A category X blocks movement of another category Y either if X and Y have the identical feature set or if Y's feature set is a proper subset of X's. In this account, both topic and *wh*/operator have an operator feature, but since the former carries an extra feature, say [TOPIC], it prevents the latter from moving across it. This is schematized in (11).

(11) *[$_{CP}$OP$_{Q}$ XP$_{Q+\delta}$... [$_{FinP}$ ~~OP~~$_{Q}$ [$_{TP}$V ...]]]

In (11), OP's feature Q is a proper subset of XP's (topicalized argument) feature Q+δ. In such a circumstance, OP skipping over XP is impossible.

3. Main Clause Phenomena in Factive Complements and Intervention with Operator Movement

In the previous section, we saw the intervention analysis of MCP in English adverbial clauses. In this section, we will see how the analysis of adverbial clauses has been applied to complement clauses.

3.1 Factive Complements

We saw in the previous section that the argument/adjunct asymmetry of topicalization is a signature of MCP, and that only the topicalized argument is sensitive to operator/*wh*-movement. As shown in (12), argument/adjunct asymmetry is found in factive complements.

(12) a.* Everyone regrets that this statement Mary read out at the last meeting.
b. Everyone regrets that at the last meeting, Mary read out this statement.
(Haegeman 2012: 261, (12))

As far as an operator is concerned, there is ample evidence that factive complements behave in a parallel fashion with weak islands. Typical weak islands are *wh*-islands (Chomsky 1977). As shown in (13), *whether* gives rise to intervention for adjunct extraction but does not for object extraction.

(13) a. What$_i$ do you wonder whether to fix t_i?
b.* Why$_i$ do you wonder whether to fix the car t_i?

A similar contrast of extraction is found in factive complements as shown in (14).

(14) a. Who$_i$ do you regret [that John met t_i]?
b. *Who$_i$ do you regret [t_i met Bill]?

c. *Why$_i$ do you regret [that John left t_i]?
(Varlokosta 1994: 317)

Based on the parallelism between *wh*-islands and factive complements, many have argued (Munsat 1986, Melvold 1991, Hegarty 1992, Watanabe 1992, a.o.) that factive complements contain an empty operator equivalent to a *wh*-phrase in Spec, CP. As previously explained, factive complements are different from other complement clauses because the truth of the proposition is presupposed. The presence of the operator in Spec, CP of factive complements makes it possible to account for its special semantics. Munsat (1986) suggests that factive complementizers are "wh-that" while non-factive complementizers are simply "that." This is because factive verbs, such as "know," select *wh*-complementizers while non-factive verbs, such as "believe," cannot select *wh*-complementizers:

(15) a. John knows where Fred lives.
b.* John believes where Fred lives.

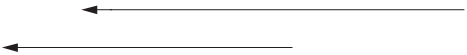
Melvold (1991) notes that factive complements are definite descriptions of events and that the operator in Spec, CP is responsible for its referential function. While concrete analyses of factive complements differ across researchers, there is a general consensus that factive complements have a more complex left-peripheral structure than non-factive complements and that the operator in Spec, CP renders factive complements a weak island.

The operator in factive complements also accounts for the lack of MCP. Similarly with adverbial clauses, Haegeman and Ürögdi (2010) propose that topicalized arguments in factive complements give rise to intervention with operator movement. For them, the operator in factive complements is an event operator, and it makes factive complements referential in the same way as DPs. If there is a topicalized

argument along the path of operator movement, its movement is interrupted in terms of feature-based relativized minimality, as schematized below.

(16) a.* Everyone regrets that this statement Mary read out at the last meeting.

b.* [$_{CP}$OP$_{Q}$ this statement$_{Q+\delta}$ [$_{FP}$ ~~OP$_{Q}$~~[$_{TP}$ ... ~~this statement~~...]]]



3.2 Eclectic Approach: Miyagawa (2017)

In his recent paper on MCP, however, Miyagawa (2017) argues that operator movement is not a direct cause of the ban of MCP in complements of Class C and D predicates. Building on Spanish data of subjunctive complements by Villalta (2008), Miyagawa suggests that complements of Class C and D predicates are "subjunctive" in English too. Due to its subjunctive nature, their predicates are semantically gradable, and must therefore select a focus operator directly, which induces a semantics of alternatives:

(17) Predicate$_{Gradable}$[$_{CP}$OP$_{FOCUS}$...] (Miyagawa 2017:18, (67))

If topic projection existed between a gradable predicate and an operator, the predicate would not be able to select the operator directly. Miyagawa maintains that topicalized arguments cannot occur in complements of Class C and D predicates because there is no topic projection above CP due to the selectional requirement.

(18) *Predicate$_{Gradable}$[$_{TopP}$ ... [$_{CP}$OP$_{FOCUS}$...]] (Miyagawa 2017: 18, (68))

One reason why Miyagawa (2017) abandons Haegeman's (2010a,b, 2012) intervention approach concerns left dislocation, which is insensi-

tive to movement and yet does not occur in complements of Class C and D predicates. The sentences in (19) are examples of left dislocation in English.

(19) a. As for this book, I really like it.
b. This book, I really like it. (Miyagawa 2017: 1, (2))

Chomsky (1977) argues that topic constructions involve movement as they are sensitive to islands as in (20). On the other hand, the following observation that left dislocation is not sensitive to islands suggests that it does not involve movement as in (21):

(20) a. This book, I really like.
b. This book, I believe Mary will assign to all her students to read.
c.* This book, I hope that Mary will see the need to assign to all her students to read.
d.* This book, I wonder who will read.

(21) a. This book, I hope that Mary will see the need to assign it to all her students to read.
b. This book, I wonder who will read it.
c. As for this book, I wonder who will read it.
(Miyagawa 2017: 3, (8)(9))

From this and related observations, Chomsky (1977) and Lasnik and Saito (1992) conclude that left dislocation is base-generated. Despite the irrelevance of movement, left dislocation is not allowed to occur in complements of both Class C and D predicates.

(22) a.* It's likely that this book, everyone will read it for the assignment. (C)

b.* He was surprised that this book, I had not read it. (D)
(Miyagawa 2017: 14, (49)(50))

If intervention is a relation of two moving elements, the impossibility of left dislocation in complements of Class C and D predicates is unexpected from the intervention approach.

In other words, Miyagawa's (2017) analysis of MCP is an eclectic mix of the intervention approach by Haegeman (2010a,b, 2012) and Haegeman and Ürögdi (2010), and the truncation approach by Haegeman (2006a,b). It does not deny the presence of an operator because factive complements are weak islands. Yet, the operator itself does not intervene with topicalization. What prevents topicalized arguments from occurring in complement clauses of Class C and D predicates is selection. Since these predicates must select a focus operator directly, there is no room for topic projection to appear in the left periphery.

4. Complement Clauses of Class C Predicates

In this section, I provide my analysis of the left periphery of complement clauses of Class C predicates, which Miyagawa (2017) grouped together with factive complements but did not overtly provide the evidence for doing so. As shown in (3), factive complements and complements of Class C predicates are different in that the propositional truth of the latter complements is not presupposed. I will investigate the extent to which complement clauses of Class C predicates are similar to factive complements.

4.1 Weak Islands

As shown in section 3, one reason for postulating an operator in Spec, CP in factive complements is weak islands. That is, by an analogy with *wh*-islands, the occurrence of an empty operator in Spec, CP of factive complements is assumed, and it blocks the movement of a *wh*-phrase across it in terms of relativized minimality. For illustration,

the relevant examples of factive islands are repeated as (23)(=14).

(23) a. Who$_i$ do you regret [that John met t_i]?
b. *Who$_i$ do you regret [t_i met Bill]?
c. *Why$_i$ do you regret [that John left t_i]?
(Varlokosta 1994: 317)

I conducted the grammaticality judgement tasks on informants regarding weak islandhood of complement clauses of Class C predicates. The results suggest that complements of Class C predicates prohibit extraction of the subject and adjunct in the same way as factive complements. This is shown below.

(24) a. It is likely that Bill met Kate.
b. Who$_i$ is it likely that Bill met t_i?
c. Which article$_i$ is it likely that she selected t_i?
d.* Who$_i$ is it likely t_i met Kate?
e.* How$_i$ is it likely that his son fixed the car t_i?

(25) a. I doubt that Bill met Kate.
b.? Who$_i$ do you doubt that Bill met t_i?
c. Which article$_i$ do you doubt that she selected t_i?
d.* Who$_i$ do you doubt t_i met Kate?
e.* How$_i$ do you doubt that his son fixed the car t_i?

Both in (24) and (25), extraction of the (D-linked) object is fine, as shown in examples (b) and (c). On the other hand, extraction of the subject and adjunct is degraded in examples (d) and (e). The asymmetry of extraction observed in (24) and (25) works in parallel with the factive complements in (23). Accordingly, we are led to consider that there is an empty operator equivalent to *wh*-phrase in complements of Class C predicates as well.

4.2 The Left Periphery

As noted in (3) (reproduced here as 26), the semantics of factive complements and that of the complements of Class C predicates are different in that the former presupposes the truth of the proposition while the latter does not.

(26) a. #Mary regrets that she skipped class, but she didn't. (Basse 2008: 54, (2 a))
b. It is likely that Mary skipped class, but she didn't.

We saw that the presupposition in factive complements has been paid much attention in the literature and is one of the main reasons for assuming a null operator in their Spec, CP to explain their definiteness, referentiality, familiarity, or givenness. It is therefore surprising that we find a similar behavior in complements of Class C predicates with regard to weak islands. Unlike factive complements, they do not select "wh-that" complementizers (cf. Munsat 1986).

(27) *It is likely where Fred lives.

Notwithstanding such differences, I take the evidence of weak islands to account for the lack of topicalized arguments in complement clauses of Class C predicates. If Miyagawa (2017) is right about operator movement not being the direct cause of intervention (cf. 22), it is plausible to assume that the reason the topicalized argument cannot occur in complement of Class C predicates is selection. That is, Class C predicates select the operator directly, so there is no projection for an argument topic to appear between them. This is schematized in (28).

(28) a. Class C Predicate [$_{CP}$OP ...]
b.* Class C Predicate [$_{Top}$... [$_{CP}$OP ...]]

According to Villalta (2008), in Spanish, it is a focus operator that makes the subjunctive mood compared to its contextual alternatives along a scale introduced by the matrix predicate. Since English does not mark subjunctivity in an overt way like Spanish, it is not clear how well this approach can fit into complements of Class C predicates. One thing that is certain about the complements of Class C predicates is that its proposition can be compared to alternative possibilities:

(29) a. It is likely that Mary read out this statement at the last meeting.
But I'm not sure. If not, she will definitely do so at the next meeting.
b. John doubt that Mary read out this statement at the last meeting.
But I'm not sure. George said she did.

(29) shows that the embedded proposition in the first sentence can have other possibilities hinted at by the following sentences. Although the relation between the possibility of alternatives and focus operator is still unclear, the findings of this paper suggest that the notion of "subjunctive" cuts across factive complements and complements of Class C predicates in English, and that "subjunctive" is syntactically marked by the presence of the operator in Spec, CP.

5. Conclusion

This paper investigates the reason why MCP such as topicalized arguments cannot appear in the complements of Class C predicates. Although they are different from factive complements in that the truth of the proposition is not presupposed, the findings from weak islands lend support for Miyagawa's (2017) analysis that both factive complements and the complements of Class C predicates involve an operator. This supports the possibility that the notion of "subjunctive" may be

captured by an operator cross-linguistically and that the operator, directly or indirectly, prevents MCP from occurring in such environments.

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[1] By topicalized arguments, I limit myself to arguing only about aboutness topics in this paper. To be more precise, there are at least three kinds of topics—aboutness, contrastive, and familiar topics, and their distributions differ across languages. Among these topics, aboutness topics are considered Main Clause Phenomena (see Miyagawa and Jiménez-Fernández 2014).

[2] See Green (1976) and Heycock (2006) for the skepticism of using "assertion" in the analysis of MCP.

[3] In this paper, I only introduce the previous analyses of so-called "central adverbial clauses". For the analysis of "peripheral adverbial clauses", please refer to Haegeman (2012).